

325-339

ALWAYS BRING THIS BOOK.

NOTES ON BOMBYCID LARVAE.

BY HARRISON G. DYAR, NEW YORK, N. Y.



*Me*

IN ACCOUNT WITH

**BARTON & WILLIAMS,**

DEALERS IN

**FINE GROCERIES,**

**FLOUR**

OF ALL GRADES,

SELECTED TEAS, PURE COFFEES, AND SPICES,

**Butter & Cheese,**

**CHOICE SYRUP & MOLASSES,**

Canned Fruit in Variety.

ALSO

A complete assortment of Goods usually kept

in a First Class Store.

H. G. DYAR

SANTA BARBARA, CAL.

Calc. 40 .57 .82 1.17 1.67 2.38 3.4 4.7.0

Wing 1.6 2.4 3.4

328 B [shd 1.6]

another hd 1.4 Hd all black shiny, long.  
antennae has the 1st abd. longest at end  
2 exs all yellow except a few black hairs on  
3 and the dorsal tufts on 6-12. Pencil  
in 1st & the long tuft on 5 range lateral,  
cardinal size as the tuft on 5 yellow  
like the other hair. white pencils normal  
larvae with 5 dorsal tufts small (black  
on 5 and 10 feet 12) 2, 3, 12 lateral & 13  
and all hair from 3-6 on 6-10 white  
tuft from 1-2 on 6-10 yellow. Pencils  
normal white, hair from 1 on 5 shorter than  
the others. Body black ventr. part whitish  
a normal one has black 2-6, 10 feet 11, 12 &  
13 on apt 3-8 on 12 & 13. Black tufts on 7, 8 & 9  
yellowish pencil from all ant on 3 about same  
length as black hair on 4 from 2-4, on 5 from  
1-2, 3-4, 5-6 on 6 from 3-4, 5-6 on 11  
from 2-3, 4-5, 6-7 on 12 from 1-3, 4-5, 6-7 on 13 from 1-3, 4-5, 6-7

1891

325-

Setoid. on maple yucca. Inst Aug 17 1891

Hd bilobed, green, mouth black, many hairs  
W. & K. mm Body slender, folded in seg. incision  
fat extended, the ant. pair of abd. ones  
rudimentary. Hair from very minute  
tubercles, rather long, stiff, blackish,  
normal in arrangement. Body green  
with a subdorsal band <sup>two from 2 & 13</sup> white, <sup>as it is a j.</sup> Contorts violently when touched.  
(no pupa in ground!)

→ Another all yellow (no black hair) except  
white pencils. Body black above, a little  
whitish ventrally. abd. feet whitish.  
The dorsal tuft and a little deeper yellow  
than the lateral hair. Sprinkles white  
the hair are paler subventrally. C shield  
black & shiny.

328 Imago. Feb 12 1892. Cal. no. 6957

*Halesidota agassizii*

Calc	.42	.56	.75	1.0	1.35	1.8	2.4	(3.2)	nat. 75
Found	—	—	—	—	1.4	1.8	2.4	3.2	

326

Aug 20, 1891

*Thyatura*? on dogwood (*Cornus mittallii*) in a house made of leaf folded (upper side in) and stitched together along the edge neatly. ~~as before~~  
 Stage 3 1.8 mm hd. rounded smooth, pale honey yellow whitish on lower third, labrum & antennae white, jaws brownish with a brown spot at base a distinct black patch covering ocelli; a few pale hairs. Body slender, gradually tapering back from the head, feet normal; piliferous dots absent, the setae short and obscure translucent whitish, with many very small white dots, the dorsal vessel showing darker. On the anterior edge of 2 a large round s.d. black spot and two smaller lateral ones. Feet all pale whitish. Length about 10 mm.  
 Stage? 2.4 hd. as before, very pale buff (Pl 5 fig 13) whitish on lower third, mouth parts colored as before, jaws tipped with black; the patch over the ocelli subtriangular. Body hyaline

white, covered with many little white flecks, the black spots on 2 as before. Trace of a white stig. line, but this may be due rather to the tracheae showing by transparency. <sup>Anterior</sup> Dorsal vessel plainly visible. Setae short, apparently normal in arrangement. Feet concolorous.  
 [Sh. hd 1.4 like 1.8 st but black patch on eye smaller]  
 [Sh. hds from next Sept 25, 1.8, 2.4, 2.4]  
 [Hd from Nov 3.2]  
 Stage 8 Head as before, w 3.2 mm. Body much the same subopaque white with a dark greenish tinge especially in the distinctly visible dorsal vessel; thickly covered with little white flecks. Spinous pale orange. No other marks, as the black spots on 2 are now absent. A few setae from head & s.v. region of body (Desc. Sept 26)  
 Nov 12 got 2 coms from Jay Cook with the bag with once pupae in them. Corn of silk & bits of dried leaves, not strong. (Put in ice house Nov. 14)  
 Pupa cylindrical, blunt on ant. end, eye cases prominent; abd. small, tapering, cremaster very large, flat and angularly rounded, terminal in 4 or 5 large hooks. Ant. short, under lens seen to be wrinkled, very dark red-brown nearly black on abd. with a rounded pale spot over each eye) more reddish in thorax. L. 15 W 5 through thorax. Skin lively

327

Skinner on oak Yosemite Sept 1, 1891. Hd. bilobed, subcordate, the apices of lobes angulated & slightly tuberculate, all granulated & minutely pilose, dark brown, irregularly shaded with pale brown, mouth & ocelli black; on each side above antennae a round pale yellowish spot, above which is a darker shade of the ground color, obscurely bisected by a faint, narrow yellowish oblique line that runs up from the spot; [sh hd 2.8] w 2.3 mm Body, no shield, thicker in middle, tapering, 2 mod. ciliate, small, entirely whitish green, legs & all with thick small yellowish dots & a faint yellowish sd line

Inst Sept 4 Hd subcordate, sides bulging, lobes rounded but vertex deeply sunken, granulated & strongly smoky slate color, tinged with coppery, with 3 rounded orange patches on each side before ocelli, 2 above the & a little back

328 2 on older 1 normal but black encrusted on 7 dorsal line [sh] the 5 tuft so only 2 are seen in the yellow. Hd 3.4 2 normal Hd 2.4 4 on willow on head all hair on 2 & 13 & 5 on 12 yellow beard hairs 4 dorsal tufts, added to 2 point each the first hair on 6 and nearly all on 10 very yellow, another into, but the 1 normal. Another of it 13 below vertex of lobe. The edge of [ash hd 2.25] the upper two are somewhat blended into the ground color; ocelli & jaws black, labrum pale green, w 3.5? mm Body as before, pale green, covered with <sup>small</sup> yellowish granulation and an obscure but sharp edged pale yellow <sup>sd</sup> line from 3 <sup>before 13 post</sup> ~~plate~~ <sup>plate</sup>, the body & feet are concolorous, there is no anal pl. nor a shield but the back part of head just where it joins 2 is shiny black like a ring around body. A faint blackish d line representing dorsal vessel.

(cut off while I was gone to Lyell)

328 [sh] from 257 in hairy hair black from all up to 2-6 & 10-13 while 257 has black only from joints 5 and 11 (want 6) [2] dorsal tufts variable, sometimes obsolete [3] rather more white (lots of intergrades) pencil hair, but character variable yellow on all [sh] black tufts 5-12 largest on 5 & 12 also later black tufts on 4, a few black hair on 3 & 4 especially dorsally on 7. On 13 dorsally a few short <sup>orange</sup> hair. No other black on 12

Several in willow at Santa Barbara Oct 31, 1891 Lids 328  
 some body centrally nearly all pale yellow, other all  
 black. Should call central has yellow. white pencils  
 in some decidedly yellow. This feet in one testaceous  
 warts ① and ② feet, almost in line with ①, elongate ③  
 lateral ④ very small sty foot ⑤ ⑥ large s-v. ⑦ small  
 on ventral of upodul segs. 328 3 had small black  
 on line with legs, some that have ⑦ each side s-v. line, hairs of  
 Sept. 8, 1891 *data on willow* *labium*  
*round seg. smooth* *base of* *labium*  
*very shiny*, antennae a line

below clypeus yellow; w 3.5? mm. Body black,  
 mottled with yellowish which predominate  
 ventrally, legs dull yellow, the claspers brownish  
 Spinach white. Hair dense, short, spreading  
 from the black wart <sup>featuring</sup> of even length as in  
*O. isabella* (which it resembles) but slightly keeled

along the dorsal line. On 2-6 and 10-13 the  
 hair is deep black; on 7-9 range ochraceous. (7/3)  
 In the black parts at both ends are several long  
 thin white pencils consisting of four to several  
 hairs as follows: on 3 from ②-⑤, on 4 from ①  
 & ⑤ that from ① a single hair & from ④ short, on  
 6 a single hair from ③ & ④, on 10 single hair from  
 ②, ③ & ④ or perhaps more, from 11 from ② ③ & ⑤  
 on 12 from ① & ④ from 13 from large wart &  
 lateral. Warts ④ sty foot, smaller than others, ① present  
 on smaller, on ventral of legless segs. (May while I was gone)

dorsal lapp. on 7-9, one only the merged trace of this  
 a few hairs hardly perceptible. On 5 & 12 in this  
 Cae. .31, .42, .86 1.44 2.4 rad .60  
 somewhat flattened. *NT* *AR* 2.4  
 S, 3 NT B 11, 12, 13 and. *C* *LIF*  
 On Cassia at Santa Barbara Cal, Oct. 18, 1891

Eggs on tender ends. Spindle shaped, truncated  
 on basal end, distinctly vertically ribbed and  
 faintly transversely striated. Color pale white  
 becoming later ochre yellow. L. 1 mm diam. 3 mm  
 Truncated [Sh. hd.] Hd rounded, <sup>sub-</sup>translucent yellow

W. 5 mm Body cylindrical, pale yellow with  
 many short hairs, arising from granulation of  
 considerable size. Some overhang the head  
 and many terminate in a little knob.

Under the microscope the setae are seen to be a  
 glandular, transparent and swollen at tip  
 & arise from large conical tubercles, between  
 which the body is very minutely granulated. <sup>prune.</sup>

Sta 3 Hd 8 round, pale green, mouth yellowish  
 many short pale setae. Body annulated, about  
 6 per seg. - feet normal yellowish green, not at  
 all shiny with a distinct rather broad, pale  
 green stigmatal line. The fleshy tubercles on

dorsal lapp. on 7-9, one only the merged trace of this  
 a few hairs hardly perceptible. On 5 & 12 in this  
 Cae. .31, .42, .86 1.44 2.4 rad .60  
 somewhat flattened. NT AR 2.4  
 S, 3 NT B 11, 12, 13 and. C LIF  
 On Cassia at Santa Barbara Cal, Oct. 18, 1891  
 Eggs on tender ends. Spindle shaped, truncated  
 on basal end, distinctly vertically ribbed and  
 faintly transversely striated. Color pale white  
 becoming later ochre yellow. L. 1 mm diam. 3 mm  
 Truncated [Sh. hd.] Hd rounded, sub-translucent yellow  
 W. 5 mm Body cylindrical, pale yellow with  
 many short hairs, arising from granulation of  
 considerable size. Some overhang the head  
 and many terminate in a little knob.  
 Under the microscope the setae are seen to be a  
 glandular, transparent and swollen at tip  
 & arise from large conical tubercles, between  
 which the body is very minutely granulated. prune.  
 Sta 3 Hd 8 round, pale green, mouth yellowish  
 many short pale setae. Body annulated, about  
 6 per seg. - feet normal yellowish green, not at  
 all shiny with a distinct rather broad, pale  
 green stigmatal line. The fleshy tubercles on

Hatched 1st round, smooth, ochre yellow. w. 3 mm. Body smooth, concolorous with head (ocelli dark brown) with a number of long tapering setae about 6 on each joint. Eat off shells.

the body ~~the~~ setae very short but slightly blackish and bear at tip large round clear liquid drops.

Under microscope the body appears minutely punctured.

Hatched 2nd Head 1.5 round, leaf green, mouth parts yellow, many short hair arising from black conical granulation. Body leaf green with a pale sty. line and thickly covered with conical black granulation, some of which are larger than others and surrounded by paler call bear short pale setae. Under the mics. these granulation arise from smaller green bases and the setae each terminate in a spherical clear drop.

Hatched 3rd, lds 2.4 round, leaf green, thickly covered with many conical granulation bearing minute setae, concolorous with head but a few of the large ones are blue-black. Hd. small in comparison with body. Body cylindrical, 5 mm thick dark leaf green with a distinct rather broad yellow sty. line, strongly shaded with orange from 2-13 a bordering anal plate. The body

where just above the sty. line & sometimes just below it the granulation are connected by black forming incipient transverse bands on the annulets.

is annulated 6 per seg. & each annulet contains 2 dorsal & 2 ventral blue-black granulation, surrounded by bluish green at the base.

Only a few of these occur below sty. line and there is the middle of the joint. The gran. are each topped by a short blackish seta. Feet & ventral pale green - nearly smooth. The body is very minutely punctured between the granulation.

Paup. by cremaster & long loop. Thorax bent up at 45° with abd. rounded, a slight depression posterior to it, a long pointed process on the head like a horn, <sup>the horn has nothing in it but juice</sup> almost continuous with side of body. Wing cases enormously developed, projecting more than the thickness of body, evenly rounded along ventral line, flattened laterally & tapering <sup>ventrally</sup> to an edge. Abd cylindrical, tapering. Cremaster flattened a little excavated below, <sup>darker pinkish micaceous #18 w. pea green #9</sup> color clear honey yellow translucent without a greenish dorsal & lateral line bordered with <sup>yellowish</sup> marks except a narrow yellow & orange lateral line along the abd. edged above with greenish blue. L 25. Whichever wing cases from dots & 1/10 thickness of abd. just 5 cases 4. Width of wing cases 5. C. entelle. 7.

Calc. .32 .49 .74 1.13 1.72 2.6 rat. 66

Found — — .7 1.1 — 2.6

*Rhamnus*

*Willow Salix*

*Eucalyptus*

330

color shiny pale  
greenish yellow  
(one looking like 5)

Oct 14  
1913

On Castor bean S.B. Oct 19, 1891 *Lepidoptera* Egg. Elliptical

flattened above below, slightly hollowed above,

smooth, shiny, covered with little grain like dust

laid in cluster of about 40 or less on under side of leaf

9 x .6 x .4 mm. Under micro. <sup>almost perfect</sup> still known <sup>very</sup> ~~small~~

slightly irregular, creased. <sup>very</sup> ~~small~~

Covered entirely of silk, white, resembling spider web

open on leaves drawing together parts of same drop

on the leaves, nearly opaque.

*Pupa* Cylindrical, rounded ant, abd segs

tapering post. Smooth, obsolete wrinkled; on the

head just back of eye a small warty prominence

Cremaster flattened, tapering, granular its base

well fastened in silk of cocoon. Color uniform

milky white except the antennae cases which

are bright brown strongly contrasting with rest

of pupa, the color joining on vertex of head. L 20 W 6

*Larva*. Hd rounded, reddish white, horn on the

mouth parts, ocelli black, <sup>width</sup> 2.6 mm Body

cylindrical, plump, abd feet on <sup>joint</sup> 10 and 13, the

*Sabulodes dosithreata* Guen  
and Hulst

700

Segments between small, Small pale setae

from surface of body. Color milky white,

in geminate dorsal, broad single sd and

stripy stig. (prob. tracheae) opaque white lines

Spiracle pale ochre, faintly bordered brownish

Another (less adv.?) had a pale green tinge, dark

dorsally, geminate d, single sd, lateral stig.

pale yellow lines, all rather broad with irregular

edges. Anal plate white & white line on anal feet

W. pale honey yellow mouth brown ocelli black.

Set. the 2 d line, d & s d, s d & lat, & lat &

stig are faintly lined opaque white line

The feet white with black tips.

Stage had 7 mm Hd round pale with a brownish tinge

especially around mouth & sides. ocelli black; a few

setae. Body green tinged with white, pale ventrally

A broad sd blackish shade band which

as well as the ground color contains several in-

distinct longitudinal whitish lines. A row of

medio-ventral dark brown spots <sup>not</sup> Hd 1.1

Immature Oct. 22, 1891 Cat. no. 6852

like penon stage but the longitudinal white line are more distinct, consisting of a germinal, broader single sd and 3 lateral narrow and somewhat irregular ones. At st. adv. 8-11 become swollen & nearly white looking like maggot (fly in it)

			1.56	1.94	2.4	ratio 81240...
Cale	.45	.69	1.05	1.58	2.4	ratio .66
Fond	.45	.7	1.1	1.6	2.4	



331 { 4 dead imago from a found }  
 { pupa = Cal. no. 6842 }

On the salt grass right on the beach, Santa Barbara Cal. Aug. 29, 89/ Skipper? Egg. Elliptic oval, (Pl. 811 fig 10) flattened at base, a round slightly depressed spot at vertex. Smooth, slightly shiny, solid white, more distinctly white on top and in several indistinct vertical streaks on the sides. Under microscope covered with little regular raised reticulation becoming less distinct at micropyle. Hatched Nov 3 As before, but small. Larva stage Hd. .45 Site on upper side of leaf near base in the fold - rounded  $\Delta$  nearly pointed at vertex, lobes not separate, smooth dark brown, blackish on front, a small indistinct whitish line above mouth - some minute pile. Vest of head arising above back Body long, cylindrical, of uniform size, feet normal but short, seg. incisures shallow. Color uniform pale yellowish green, with a double d. single sd, narrow, even yellowish lines. Anal plate large, circular, projecting & bearing a few pale hairs.  $\Delta$  Hd. .7 As rounded  $\Delta$ , very slightly notched on vertex, somewhat shiny, minutely punctured and

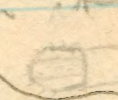
vertical and yellow

with scattered fine pale whitish, with a yellow  
trigge, a broad brown band from below base of  
antennae to vertex joining the one from the other side  
below vertex of head & another similar fainter band  
behind & 11 to this passing behind vertex. mouth  
horn. Body light green, not shiny, transversely  
annulated, the 1st dorsal & 2d line distinct  
narrow, pale yellow with even edge. They run the  
whole length of body, the 2d slightly wider than the 1st.  
Anal plate rounded, projecting with some pale hairs  
[Sh lid 1.1]  
3rd Hd rounded, bulging in front & at ends,  
clypeus not depressed, pale green with many minute  
blackish dots, the brown bands as before but much  
less distinct; labrum whitish, very minute with  
fine ocelli black  
the surface - not smooth but appears minutely granulate  
Body much as before, more grass green covered with  
very minute dark green dots. The pale yellow  
lines are as before, rather more distinct with their  
edges defined by a darker green line than the  
general color. They begin on the anterior edge of

the dorsal one terminates at the beginning of anal  
plate which is large, concolorous with body & bears  
several distinct brownish hairs. Length 7.5 mm.  
a substy. ridge above which is a band slightly  
darker green than ground color & below it a broad  
distinct greenish yellow band which becomes more  
distinct as the stage advances. ✓

[Bugs skins on stems & blades of grass by either 2 loop-cylindrical, somewhat flat ventrally, thickened at the ends, slender & long, abd tapering, a tapering  
process like a horn projecting from head in  
front; wing cases not projecting, the leg cases  
extending a little further than the wing cases along  
the abdomen. eye cases prominent. Cremaster through head  
ridged subapically, representing anal plate of larva  
[Sh lid 1.6]  
Nov 8 Hd as before but the brown bands  
entirely absent, grass green, minutely wrinkled  
& covered with very small brown dots; jaw & ocelli  
black, labrum white; w. 1.6 mm Body grass  
green, with 4 narrow yellow lines (2d, 1st) the  
dorsal obscuring with dark green, the spaces between  
them and down the side as far as the lateral

region thickly dotted with dark brown. May  
2-V ridge a broad greenish yellow band, shading  
off above into the ground color. ✓

Molt Dec 25 Hd rounded Δ, bulging, clypeus small,  
opac green minutely dotted with black; labrum  
whitish, jaws black, ocelli black mixed with  
white w 1.9 mm Body as before, anal plate  
very large projecting, edged by the 5-d line but  
concolorous with body. Sides green, tinged with  
yellow, line as before darker d, 2-4 and narrow  
near discal yellowish edged with green. The  
body is densely dotted with green, darker than  
the ground color (lacking yellow) & there is a  
darker supra st. shade. Sub st. band along  
the ridge pale yellow, broad, distinct. Feet about  
spiracles small, straw yellow + feet green  
with these green dots in it like those on rest of body  
anal plate 1.5 mm. long  projecting 1/2 its length  
beyond the last pair of abd. feet. 2 small on 2  
a large, on 5-11 small on upper side of st. ridge.  
the one on 12 larger and situated above the ridge.  
another moults Dec 6 head 2.4 mm  
Dec 10 died nearly ready to moult. Hd 1.9, new head?  
(a hd. shed from found pupa hatched 2.1, perhaps at moult?)

Pamphila panopimoides Sk?

Size	.17	.24	.34	.5	.7	1.0	ratio .70
Found	—	.25	.3	.5	.7	1.0	Egg. from ab. 2 ♀

332 apparently covered with large  
contiguous depression. D-33  
color uniform pale green  
flattened at base  
spherical much

Little Nola on willow Santa Barbara Nov 2, 1891  
[Sh hd. 7]

Hd. small round, pale brown; w .5 mm. Body thick  
somewhat flattened, tapering a little each way from  
middle with 3 rows of large smooth shiny dark  
brown warts, that bear spreading long thin white &  
blackish hair. row ① s-d, 2 per seg on 2-4, ②  
lateral ② s-v with some very minute warts below  
it. Cph large, deep brown with a whitish dorsal  
line bisecting it. Color of body solid white, a broad  
deep brown s-d band, somewhat irregular, narrower  
on 3 & 4 and connected by a transverse bar over the  
2 in another blacker one also on 5  
dorsum on 7. Length of larva 5 mm. ✓

[Hd 7 dark brown, shiny, blackish on vertex, whitish over  
lamps of clypeus, ocelli black, mouth dark brown,  
another hd (mm same) Eat (punk) on back side of  
leaf and hide by day in old dead curled leaves  
or stick them heads in folded leaves etc

Size Hd same w 1 mm. Body wider than high,  
rounded hardly tapering at all; warts ① very



Calc. 1.64, [1.83] 2.05. rates. 89

Found 1.65, 1.8, 2.2, 2.5, 3 -

The feet largely black except at base below.  
A few small hairs on tibiae. Feet normal.

Not a minute black from mouth round ①

Molt 2/15 Hd unidentate, black, shiny, white

above except w. 6 mm. Body dark, blackish

thorax darker, a pale d. line. Hair long stiff

black. Under chitinous pointed at the end &

greenish with little back the whole length

Warts blue black, 2 sh black, and 1 blackish.

Molt 3/22 Hd rounded, shiny black, with a few hairs

W 7 mm. 6 sh black. Body dark purplish brown

black with a narrow continuous narrow white

line which becoming obscure at extremities. Warts

large shiny black. Hair black, bristly

micro thick but ending in a sharp point

barbed the whole length

Molt 4/28 Hd slightly bilobed, mouth parts large

shiny black. W 11 mm. Body black except a narrow

whitish d. line & tips of abd feet which are white

ash shiny black. Hair bristly sharp, dense and black

except the 5-8 hair which are whitish.

Calc. 43 .54 .67 .84 1.05 1.31 1.64 2.05 2.56 3.2 4.0

Found .45, .55, .70, 1.1, 1.65, 2.0, 2.6, 3.2 4.0

2. time very narrow, broken in between the stage

and d. line slightly reddish and a row of

reddish spots above the d. line of row ①

Molt Dec 5 Hd same, W 1.6 mm. Body black

ash shiny black & bisected, the feet black the

abd. are only blackish with their tip flesh color

a very narrow obscure line on pale dorsal line

Warts large black shiny hair bristly sharp deep

black mixed with a few reddish ones especially 5-8.

Base of antennae & line below clypeus whitish

hair minutely barbed as before. Clypeus pale the

rest of head, spiracles white. No stage

joint 12 & 13 above ① (could not have noticed them)

Later as distinct as before, diffuse dull red rounded spots

dist. entire divide joint 13, no anal plate but 4

small warts and another rather small foot,

Molt 6/17 Hd black shiny but clypeus & antennae

pale base of antennae & labrum whitish

pendant w. 2 mm. Body black feet flesh color

[Sh. hd 1.75, 2.0 2.0 1.8 1.8 1.8] very obscure

dorsal line not distinct, broken reddish, warts

[2.0, 1.5, 1.8 1.8 1.8 2.0 2.0 full 1.8]

very large, hair bristly black with a few longer

reddish hair especially 2-4. Spiracles white

ash black bisected. Warts shiny black, 4

little later the body becomes entirely black, no dorsal

line and no lateral spots. Velvety black, a little

shiny but eyes, warts shiny coarsely granular

& stage advances the d. line appears again faintly

and in some also the lateral spots, in other



335

Ox 15  
1893

Egg from abdomen of cat no. 6861, Tadoussac, N.B.  
 Elliptical, flattened on two opposite sides and  
 truncate on one end, the truncated end depressed  
 and slightly ridged around the depression,  
 densely covered with hexagonal depression, the  
 reticulation at the <sup>base</sup> of ~~abdomen~~ <sup>very pale green</sup> whiter than  
 the rest of the egg. Color nearly uniform ~~whitish~~  
 accompanied by a transparent yellow gum  
 in abd. of ♀; length 8 thickness 5 mm.

Under the microscope the hexagonal areas  
 are seen to be formed by broad elevated  
 reticulated lines, more or less granular and  
 often broken. These elevations are nearly white.  
 The truncate end (top) of the egg is peculiar, having  
 an outer elevated ridge & an inner one between  
 which is a ring like depression. The central  
 elevation is hollowed, to form the micropyle and  
 the reticulation radiates around from the micropyle  
 which is itself finely reticulated <sup>ring</sup> <sup>micropyle</sup>

~~coming from the CBT Zyle Townsend) spun among  
 the narrow leaves of its food plants, "attached to tips  
 of branches" composed entirely of silk in a dense  
 netting, the strands thick (not single threads) and  
 looking as if made of round holes, but of size  
 enough to obscure the pupa: oblong rounded, colored  
 white but irregularly yellowish stained. 23 x 10 mm~~

~~It is double, containing a slighter netting inside the outer  
 Pupa, top of head from chin, shiny, very thin, so much  
 so that when broken in after cut, it is not  
 apparently cylindrical, tapering a little on abd.  
 rounded at ends. Grounded short, broad, with  
 caprim, acquired at these ends, the two posterior  
 are arising from slightly elevated conical bases,  
 color apparently white brown or feet of head  
 white with a slight bluish tinge over the  
 length 16 mm; width about 4 mm.~~

~~Long spider from cat & pupa skins. It is round,  
 tapered at smooth ~~head~~, white with numerous  
 black dots, larger than head of complement (most like  
 size of pupa) also thick on lower part of head; chrysalis  
 white with 2 confluent black dots near apex, labrum  
 of brown, width probably about 2.2 mm. Anal  
 plate large, oblong, white dotted with black like  
 the head but the spots more confluent. ~~Stomach~~  
<sup>large</sup> pale rectangle, brown at tip. Shell 6 is the  
 with a few short hairs. The abd. feet appear to  
 have been normal, the anal feet well~~

developed with large hooks. The body may have been white with black marks; spiracles black. Egg of *Tachina* on it. (2 eggs on body of larva) Eclipse water (Pl. 11 f. 4), flat below, rounded above, smooth, shiny white. Under the micr., very faint divided into minute hexagonal areas, appearing nearly circular. L. 6, W. 3 mm. Hatched by taking off a small piece from the pointed end.

*Eucateroia varanaria* Lat.

### 336 Pupa

Thorax narrow, abd., enlarged, rounded, a slight depression behind thorax, hd. prominent slightly flattened. Color, <sup>pale</sup> sordid yellowish with a purple tinge over the dorsum of abd., and a purple brown dorsal line; a 2<sup>d</sup> row of purple brown spots running the whole length, besides numerous dots of the same color over the whole surface, more sparsely dist. Color

10 x 4.5 mm

Calc. .28 .41 .59 .84 1.2 water <sup>copied notes by</sup>  
 .16 .30 .55 1.0 nat. 53 <sup>June 3 1890</sup>  
 .15 .3 .6 1.0 *Lycæna boetica*

336  
 = 6898 | Imago Feb. 17, 1892. Ant. no. 6964  
*Lycæna* or *Crotalaria* ~~near~~ *longirostrata*  
 H. D. Jan. 30, 1891. Inside the flower slightly flattened, wider than high, rounded at the ends; a sub-sty. ridge. Hd. black. 2.5 mm. The feet black, abd. normal, short, concolorous with body. Body rather densely covered with short, stiff black setae above, wanting below, seen dist. only with a lens. Color white with a sordid yellowish tinge & a narrow pale brown d. line. Cth in middle of 2, remote from head, depressed, black. 2.4 mm. Egg deposited on the outside of the calyx of a flower much flattened, circular in outline from above, <sup>mainly white</sup> green, <sup>very</sup> roughened; diam. .45 mm.

Under the microscope (1/2 in obj) it is seen to be green covered with raised white reticulation which surround a central green ampipyle, and become larger as they become more remote from the vertex, on the sides, <sup>very</sup> much enlarged.

*Handwritten notes at top of left page, partially illegible.*

at the intersection appearing as if tripled.  
 Antennae brown, labrum & base of antennae  
 white; w. 8 mm. Csh concolorous with body,  
 depressed, semicircular. Body flattened below  
 feet short, wider than high, rounded at the  
 ends. Uniform whitish green, covered with  
 minute blackish fike and pale setae 1-5.

An indistinct white line along s-sty ridge.  
 Later as green as stems. Observed published d. line  
 An obscure blackish d. line. On R the no  
 to be a dorsal pale space which may be  
 an opening and a smaller smaller one feet  
 behind the spiracle. Spiracles pale ochraceous  
 seeds in the flower or seed pods.

It. 60 Bitbed, black shiny, clypeus large &  
 ocelli 4 in a semicircle. A little anteriorly feet. to the other  
 Body uniform whitish green with brownish d. line. On  
 and s-sty c-shinshy shaded with brownish d. line. pale  
 with pale setae 1-5. Spiracles dark.

Hd. 53 (36 hd. 3) Black shiny, labrum white. Body con-  
 colorous, csh large, depressed. Minute pale black  
 Body whitish, head green, with a thin pink  
 d. line & similar colored pleural line, on the sides.

Hd. 76 (66) Hd rounded, brown, nearly black, antenae  
 green. W. 14 mm. Body whitish with sparsely  
 distributed black setae, shade from a blackish  
 similar as in H. 60. Csh very large, brown, rounded  
 not depressed, nearly covering 2/3 anal plate rounded  
 large, black, rather remote from anal end.

Macoleia Blackburn Butl  
 det by. Hampson. Mar 27 1899  
 Jan 3 1900

cat. no. 6907 <sup>337</sup> Very injurious Cocos nucifera L  
 Mies (Potys?) on coconut palm, Honolulu H.I.  
 Jan 31, 1892. Sew together the leaf back to back  
 behind the folded part with bands of several  
 threads as intervals. Several together; each at  
 top and finally 'corn' at the base of the division  
 of the leaf in a slight webby cocoon.

Larva (inst.?) Hd rounded, median suture not  
 deep, clypeus & mouthparts small; several  
 rather long hairs; minutely shagreened but  
 not conspicuously. Skull sordid white,  
 almost testaceous with <sup>6</sup> moderate large  
 black spots, as follows: over ocelli, one above  
 the in line with another near top of clypeus;  
 above this latter another very near the median  
 suture; two more below the vertex, elongate  
 and almost contiguous, directed towards the  
 side of head; jaws pale brown, black at  
 base & tip; w. 3 mm. Body elongate, slender  
 transparent and nearly colorless, the

green food showing through, 13 divided  
 by a moderately distinct suture and trace of  
 another on 12. On the central segment 3 large  
 but almost perfectly flat, transparent spots  
 above spiracle, with smaller indistinct ones  
 below, the two upper in line and each  
 bearing a hair. A pale yellow double  
 dorsal line, each side a dorsal vessel,  
 & the white tracheae showing by transparency  
 at the spiracles. Spiracles small, faintly  
 yellowish. Feet all pale. Length 32 mm.  
 Pupa cylindrical, slender, slightly tapering  
 post., the antennae & leg cases projecting  
 beyond wing cases; cremaster conical, and  
 much flattened, terminating in several  
 recurved spines. Color pale brown, darker in  
 the abdominal sutures. L. 17 W. 4 mm.  
 Damago Feb 4 1892, cat. no. 6927 = 6907

Cule. .36 .55 .83 1.2 (1.8) (2.75) ratio .66  
 Found .3 .55 .8 1.2 1.8 2.7

338

Oct 4 1893

Egg in window of cupola of Hawaiian Hotel  
 hemispherical, flat at base, thin shelled, covered  
 with minute reticulations seen with 10x obj.  
 diam. 6 mm. Laid with slight grey down  
 slight bluish  
 Hatched Feb 3 Hd rounded black, shiny, labrum  
 [Sh. hd. 3] whitish. W. 3 mm. Body small, feet perfectly  
 normal, tho. black, the other whitish like the  
 body, tho. apparently as in Arctus, concolorous  
 with body, inconspicuous, each with a single  
 stiff black hair. Walks rapidly, slightly looping.  
 (Gave them food plants: they ate grass, Feb 4)  
 Hatched Feb 6 Hd slightly bloated, shiny blackish brown  
 [Sh. hd. 5.5] much paler in front over 8 & mouth W. 5 mm.  
 Body enlarged at 12, bluish green, the sutures  
 distinct black, each with a black seta. A d  
 sd & lat. whitish line, distinct over 5 & 6  
 sp. whitish line with no distinct line.  
 Feet normal, all pale, tho. slightly testaceous.  
 largely shaded with black & brown on 1-8th.

(Shhd. 8)

Mar 3, Feb 8 Hd 1.8 dark brown, nearly black, shiny, a pale stripe over the ocelli. a few hairs. Body blackish green, a distinct d. s-d & lat. pale green line, the lateral narrower than the others, s-v. Sp. & venter pale, defined upward by a pale green s-v band, which contrasts with the dark color of the dorsum but is only a shade lighter than venter. Piliferous dots black, distinct, each with a minute black seta. 12 enlarged feet used

(Shhd 1.2)

Mar 5 Feb 10 Hd 1.1 entirely black shiny with a few hairs. Body, velvet black, green center of ocelli with narrow broken double d. single s-d & lateral & broad s-v greenish white line, the latter not reaching into the anal seg. Setae short, black, the dots are longer distinguishable on the sooty black ground color. Feet pale green tinged blackish. Spinacles white. Ant. specially when at rest.

Mar 5 Feb 12 Hd 1.8 black shiny; base of antennae whitish, ant. of 3 pale. Body deep sooty black, the line white, very narrow callosities black, the s-v not broad, but distinct, yellowish, spinacles white. Venter pale green, feet pale, all tinged with blackish, the thoracic darker (during each stage the black fades to blackish green)

Later the space betw the 2 narrow d. line is pale, giving the appearance of a broad pale band with defined edges. The s-d is triplicate, narrow faint, and the lateral single, above the spinacles more distinct than the other. [Shhd 1.8] ✓

Mar 5 Feb 15 Hd 2.7 rounded, black shiny, ant. antennae

antennae white tinged with red

white, a pale brown mottled lateral band, body sooty black to the venter which is pale whitish, the s-v region is deeply black than the dorsal. On 2 a distinct narrow white d & s-d line, absent on the rest of body. & <sup>the d. absent on the rest of the body</sup>

Superiorly line of fine white with a series of 5 very narrow faint line above it, bluish white & broken minute into dots & above the 2 more, further apart than the 5 are from each other, more distinct & continuous. The upper one of these line, second joining the s-d line on 2. but is much narrower than it. Spinacles white. s-v line broad, its edges irregular pale yellow white or reddish a central dull greenish shade s-v of mottled with yellowish. Feet pale, greenish outwardly. The setae are present, short and dark, but the dots from which they arise can not be distinguished. As the stage advances the dorsal line <sup>appears</sup> fades, resembling a shiny black band against the sooty black ground color. The lateral series of line become more dotted the supra-sty. one better defined than

the rest and tinged with yellow. The subventral space is only blackish, but densely mottled with pale round spots.

Entered ground Feb 18. Peris of usual shape, crevaster of 2 separate, rather distinct slender joints, directed backward. Color light brown, uniform L 13 W 4 mm.

Imago March 1, 1892. Cal. m. 6985-90  
Egg at Kaawaloa, Kona, Hawaii, (on pine grass) nearly spherical, flattened at base, densely reticulated, of a flesh colored tint, covered with dense gray down. In large mass on stem of grass.

*Laphygma flavimaculata* Harvey  
auct. J. B. Smith

Calc.	.54	.99	1.8	3.3	6.0	rat. 53-
Found	.55	1.0	1.8	3.2	6.0	

Oct 24 1894

339 of *Ipomoea* sp. cultivated vine of *Ipomoea tuberculata* Roem. & Sch. on Honolulu Feb 6, 1892. Higher than wide, rounded, flat in the front smooth. Shagreened; chrysaer large; leaf green. a broad black vertical band on each side covering the ocelli which it just encloses by it well defined and border; before it the ground color assumes a yellowish tint, and preceding the yellowish shade is a faint blackish clouded band. antennae yellowish in combination of the above mentioned shades. jaws black; w 6 mm segments annulated. Body plump robust, the head slightly retracted below 2 but body elsewhere of uniform size. Horn large, tapering, curved backward covered with short tubercles which bear very minute setae. Color, <sup>smooth</sup> a little mottled w. whitish, leaf green, except for the following <sup>purplish</sup> brown marks, mottled with black: a patch covering the tho. feet & their bases; an oblique s-v patch on 6, analogous to the marks covering the alid. feet. each of which extends

upward & forward obliquely in a broad band ending at the ant. edge of the segment the one covering the anal foot, extends along s-v to the ant. edge of N<sup>o</sup> 5. Small plate green, contrasting with the anal black base of the feet, surrounded above by a faint brown s-d shade. A broad s-d band <sup>enlarged centrally on each seg.</sup> behind c-sh. widening, and sending out an arm obliquely forward & downward on j. 5-11, which ends at the ant. edge of the seg. before the spiracle. The band narrow on 11 feet. & ends at the horn which is colored blackish brown with small greenish tip. The lateral branches of the s-d band are edged post. with white, representing the usual oblique strips of spiracles black with a linear ochreous border and central dividing line these on 5-12 surrounded by a circular black patch, contiguous (except on 12) to the oblique lateral line.

another 115 mm  
Length about 70 mm. of horn 7 mm  
abdomen surrounded outwardly with all over s-d. pale brown.  
Small rounded black confluent spots (on 304) almost a narrow s-d lighter horn bands.

a vertical whitish line before the black ocelli another s-d rounded, uniform light green, thickly covered with small round white tubercles, w 3.2 mm. Body rough with many white granulations like those on head, more elongated on the caudal horn, & then bearing minute setae. Color green with a whitish shading, and 7 oblique lateral lines 5-11 the last produced over 12 to base of horn the other reaching from before the spiracle to s-d region but continued back on the next seg. by a faint whitish shade. They are pale yellow, preceded by a light green shade, marked centrally by a small dash of light purple; on 12 the last stripe fades into white. Horn green, yellow at tip. Legs feet red-brown. Spiracles mostly brown bordered narrowly with ochre. In another the band on hd shaded post with blackish; purple oblique dashes on spiracles nearly surrounded by black patches on ant. side black. 2 horn 7 mm. Also the marks on feet are as in mat. but fainter.

Molt Feb 7. Hd 6 mm as above (5)  
about 5 mm. Hd flesh horn, vertical black strip, ocelli narrowing to vertex, another near anterior of ocelli curved to vertex broad; sutures of s-d. jaw black. Body flesh horn, densely spotted with black, almost covering feet & ventral entirely black horn black with minute yellow tip & edge of anal plate ochreous. Lateral oblique line indicated by heavy black shading above & mediantary or glomerate

Little one rounded, brown. Instruk pale greenish yellow, mounts a little darker ocelli horn. w. 5 mm. Body cylindrical, smooth shiny but distinct annulated, uniform whitest. the food showing as dark green; a faint narrow white sd line, ending at horn. Horn straight, thick, blunt at end. Black, minutely setose, 1.5 mm. ~~Moist Feb 9~~ Head 1 mm, rounded, pale green, with many setiferous white granulation. ocelli black. Body cylindrical, annulated 2 granular, the granulation, setiferous, white. color pale green; caudal horn black, spinose 2.5 mm tapering. Spinach with blackish shades. Hatched Feb. 55. Entirely white, except black horn. ~~eggs on I tuberculata~~ behind Buckhorn Hill Feb. 11. Spherical, nearly spherical, not flattened: smooth shiny, nearly colorless translucent, with a greenish tinge. Dimension 1.3 x 1.1 x 1.1 mm. Under glass, smooth shiny, covered with circular shallow pits of varying size and irregularly distributed, a few intersecting. ~~Moist Feb 10~~ Head 1.8 rounded, green with conical white granulation, a faint yellowish line run up before the ocelli in the horn form followed by a black shade post. Body cylindrical, annulated covered with white granulation, a very faint sd line and indication of the oblique lateral line, in the uniform preceded by black shades. Spinach surrounded by black and similar colored marks on all the feet. Spinach ochreous (Horn lost in the example)

white supra-stigmatal (ant 54)  
apodal (SWP)

Entered the earth and formed a cell. ~~Super~~ Large, robust, legs and joints of wing cases (shoulders) prominent. Tongue case large distant from the body, extending down to the middle of case & then recurved along the body to near its origin; rounded and a little enlarged at the end. Abd. tapering; cerata broad, flat, narrowing laterally ending in 4 sharp spines. Abd segs readily moveable, punctured in the incisions. Color bright mahogany red, darker on the lower case; cerata nearly black, 2.6 mm. w. of tho. 15 mm. length of tongue case (recurved) about 47 mm. width of barbe 2.5 mm. Distance from origin of tongue case to point where it is recurved 21 mm; distance of tongue case from body (before recurved) 5.5 mm.

~~Imago~~ March 24, 1892; cat. no. 7019

*Protoparce cingulata*?

H. G. DYAR  
SANTA BARBARA, CAL.